

Docket No.: 12810-00323-US
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Tim Jungkamp

Application No.: 10/586,452

Confirmation No.: 4478

Filed: July 18, 2006

Art Unit: 1626

For: METHOD FOR THE SEPARATION OF
PENTENENITRILE ISOMERS

Examiner: J. R. Kosack

REPLY BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This Reply Brief is a response, filed within two months, to the Examiner's Answer dated November 25, 2009 pursuant to 37 CFR §41.41.

Arguments begin on page 2 of this paper.

ARGUMENTS

Claims 1-14 were rejected as obvious under 35 U.S.C. § 103(a) over Jungkamp et al. (WO 02/26698 or US PGPUB 2004/0039221) (“Jungkamp”). The document, when read in its entirety, fails to support the Examiner’s position that claims 1-14 are obvious. In particular, Appellant respectfully submits that the Examiner’s Answer has: (1) mischaracterized and ignored the complete scope of the subject matter specifically recited in the claims; and (2) not provided an analysis or showing of why there would be a suggestion or motivation to modify the document to achieve the claimed invention.

I. THE COMPLETE FEATURES OF THE APPEALED CLAIMS ARE DIFFERENT FROM THE JUNGKAMP DISCLOSURE

The Examiner contends in the Examiner’s Answer that the present claims are merely “drawn to a process for separating mixtures of isomeric pentenenitriles, in which at least one isomer is depleted from the mixture, i.e. separation of pentenenitriles, by distillation.” Examiner’s Answer at page 4, lines 1-3.

By contrast, Appellants point out that appealed claim 1 specifically recites, *inter alia*, a process for separating mixtures of isomeric pentenenitriles, in which at least one isomer is depleted from the mixture, which comprises

***effecting the separation of the mixtures of isomeric
pentenenitriles selected from the group consisting of***

- ***mixtures*** comprising 2-methyl-3-butenitrile and 3-pentenenitrile,
- ***mixtures*** comprising 2-methyl-3-butenitrile and (Z)-2-methyl-2-butenitrile,
- ***mixtures*** comprising cis-2-pentenenitrile and 3-pentenenitrile

by distilling under a pressure of from 0.01 to 0.5 bar and

- ***mixtures*** comprising (E)-2-methyl-2-butenitrile and 3-pentenenitrile

by distilling under a pressure of from 0.02 to 0.5 bar.

(Emphasis added). See also Appeal Brief at pages 4-5.

See page 20, lines 14-20 of the present specification which describes how the manner and arrangement of the specifically claimed separation process leads to “few separating stages and

less energy.” Moreover, [i]n the case of the separation of 2-methyl-3-butenenitrile and (Z)-2-methyl-2-butenenitrile, and also in the case of the separation of (E)-2-methyl-2-butenenitrile and 3-pentenitrile, the separation or enrichment and depletion is actually made performable in an economic manner with an industrially realizable level of complexity.” *See also* the several working examples of the claimed mixtures, beginning at page 20 of the present specification.

Jungkamp, on the other hand, in its description of the separation of pentenenitrile isomers, generally describes and specifically exemplifies the distillation of several pentenenitrile isomers. Examiner’s Answer at page 4, lines 5-6. However, the document clearly does not set forth or provide “the exact pairs of isomers that are listed in claim 1 nor does Jungkamp et al. teach the exact reactions that the mixtures come from.” *Id.* at lines 7-8. (Emphasis added).

Despite above-shown clear differences in the Jungkamp’s disclosure, the Examiner’s Answer contends that, inter alia, “one of skill in the art would be able to complete the distillation irrespective for which reaction the mixture of penetenitriles originated from.” *Id.* at lines 9-15.

However, Appellant points out, as recognized by the Supreme Court in *KSR International Co. v. Teleflex Inc.*, that “rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” (*See KSR*, 127 S.Ct. 1727, 1741 (2007)(citing *In re Kahn*, 441 F.3d 977, 988 (C.A.Fed. 2006)). Appellant asserts that the proposed modification by the Examiner, ignoring the exact pair relationship and reactions, is *prima facie* improper since the Examiner has not provided an appropriate basis for making such a modification to achieve the claimed invention. In particular, other than asserting what Jungkamp may or could indicate, the Examiner has not provided an analysis of why or how one would modify the document’s disclosure to achieve Appellant’s claimed invention. Therefore, the rejection should be withdrawn for at least these reasons.

II. A SUGGESTION OR MOTIVATION TO ACHIEVE THE PROCESS OF THE APPEALED CLAIMS IS NOT SHOWN

The Examiner contends “that Jungkamp et al. adequately suggests and motivates the person of ordinary skill in the art to apply the method of distillation in a vacuum for the specific pairs of pentenenitrile isomers in claim 1 and the dependent claims.” Examiner’s Answer at page 5, lines 4-6. In particular, while appreciating that Jungkamp “[does] not teach a distillation

example with the exact pairs of pentenenitrile isomers as in claim 1 and the dependent claims, the Examiner asserts that Jungkamp “appreciates that the claimed isomers would be in a reaction mixture generated from the direct hydrocyanation of 1,3-butadiene with hydrogen cyanide. See paragraphs 7 and 8 on page 1 of the English equivalent, US PG PUB 2004/0039221.” *Id.*

However, contrary to the Examiner’s characterization of Jungkamp, Appellant points out that paragraph 7 on page 1 actually provides a published article’s description of one of “four fundamentally different routes for the production of adipodinitrile” and not the invention or implication of the process of Jungkamp. Paragraphs 8 and 9 on page 1 further provide a detailed description of a two-stage process of forming adipodinitrile, which does not compare to the Jungkamp process or the specific distillations of the claimed invention.

The Examiner also contends that Jungkamp “teaches that by azeotropic distillation, groups of pentenenitrile isomers can be separated because their relative volatility ratio (α) will be higher than without the addition of water. See paragraph 1 on page 1 of the English equivalent, US PG PUB 2004/0039221. The implication is that the addition of water, or another diluent to form an azeotrope, is not specifically necessary if the relative volatility ratio (α) is higher than 1.3.” *Id.* at lines 12-17.

However, Appellant points out that paragraph 1 on page 1 of the US PG PUB only recites that “[t]he present invention relates to a process for the distillative separation of pentene nitrile isomers which have a relative volatility α ranging from 1.0 to 1.3 in the pressure range from 1 to 500 kPa, wherein the distillation is carried out in the presence of a liquid diluent which forms with the pentene nitrile isomers, under the same pressure conditions, azeotropes whose relative volatility α is higher than that of the pentene nitrile isomers to be separated.” There is no implication or otherwise, based on consideration of the *entire* disclosure of Jungkamp, of the Examiner’s contention. As such, other than the Examiner’s conclusory remarks, there is clearly no suggestion or motivation for one to modify Jungkamp to achieve the claimed process.

In view of the above reasons explaining the patentable distinctness of the presently appealed claims and the previously discussed evidence of record, it is abundantly clear that the Examiner has erred in the rejection of claims 1-14 under 35 U.S.C. § 103(a). Accordingly, it is respectfully requested that the Board reverse the Examiner and allow claims 1-14.

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Appellant believes no fee is due with the filing of this Reply Brief. However, if a fee is due, please charge our Deposit Account No. 03-2775, under Order No. 12810-00323-US from which the undersigned is authorized to draw.

Dated: January 25, 2010

Respectfully submitted,

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